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ABSTRACT

This guide discusses the ways in which educators in technical and vocational education programs can maximize opportunities for limited-English-proficient students to learn English language skills. Vocational classrooms are viewed as potentially excellent environments for language learning because of the hands-on nature of the work, undertaken in pairs of small groups, using authentic materials and equipment, and requiring interpersonal communication. In addition, learners are often highly motivated. An introductory section reviews this approach and the literature supporting it. The second section looks at the role of the vocational curriculum in language teaching, including the types of language curricula (grammar-based, functional, and process-based) that can be used as referents in developing vocational-based language instruction, elements of vocational curricula that may be exploited for language learning, student need analysis and placement issues, and implications for implementation by vocational teachers, language teachers, and administrators. The third section offers more detailed suggestions for developing content-based language teaching activities, based on principles of scaffolding vocational instruction and fostering independent learning, at each of four proficiency levels from pre-speaking to high-intermediate/low-advanced. Examples of authentic activities are offered. Contains 63 references. (MSE) (Adjunct ERIC Clearinghouse on Literacy Education)

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The Vocational Classroom

A Great Place to Learn English

Elizabeth Platt

ED 406 856

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The Vocational Classroom:

A Great Place to Learn English

Issues in Vocational and Workplace ESL Instruction Series

Learning to Work in a New Land:
A Review and Sourcebook for Vocational and Workplace ESL
by Marilyn Gillespie

●

The Vocational Classroom:
A Great Place to Learn English
by Elizabeth Platt

●

Workplace ESL Instruction:
Programs, Trends, and Issues
by Miriam Burt

●

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PAIE
Puerto Rican Adult Integrated Education

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Other Publications from the Issues in Vocational and Workplace ESL Instruction Series

Learning to Work in a New Land:
A Review and Sourcebook for Vocational and Workplace ESL
by Marilyn Gillespie
This paper provides a concise, but detailed overview of the status of the field of vocational and workplace ESL instruction. It reviews existing written materials from both research and practice to assist practitioners and all others interested in preparing adult immigrants and out-of-school youth to work in the United States.

Workplace ESL Instruction: Programs, Trends, and Issues
by Miriam Burt
Based on interviews with over a dozen providers of workplace ESL instruction, this paper discusses such issues as securing funding, customizing curricula, demonstrating results, and developing a professional workforce for service delivery.

Acknowledgements

The purpose of this paper is to suggest how vocational education opportunities can be maximized for linguistic minority students who are currently limited in their ability to read, write, speak, and understand English. It is addressed to those in vocational or technical education programs serving limited English proficient (LEP) students: English as a second language (ESL) professionals, vocational teachers, and school administrators in high school, community based adult education, or post-secondary settings.

This paper is data based and makes reference to a study commissioned by the National Center for Research in Vocational Education (NCRVE) in which a team of researchers looked at vocational instruction for limited English proficient students at six secondary and postsecondary sites throughout the United States, focusing on how ESL teachers collaborated with their vocational colleagues to provide instruction. The findings have been published by NCRVE (Platt, Shrawder, Ujhelyi, & Wannawati, 1992), and they should be consulted for further information on ESL/vocational teacher collaboration, vocational instruction, and program development on behalf of limited English proficient students.

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Introduction

The immigrant and refugee population, many of whom are limited English proficient (LEP), is growing rapidly in the United States and is affecting the nature of larger American communities significantly. In 1980, an estimated 6.8 million limited English proficient adults lived in the United States, but that figure is expected to more than double by the year 2000 (Willette, Traub, & Tordella, 1988). According to census data from 1980 to 1989, the total number of immigrants admitted to the United States grew from 530,639 to 1,090,924. Accompanying this significant increase are related educational and occupational deficits, poverty, and legal problems. Of the young people from 14 to 24 years of age who dropped out of high school in 1989, 28% were Hispanic (U.S. Bureau of the Census, 1991, Table 257). An even more startling statistic is that students from homes where a language other than English is spoken drop out at a rate of 40%, compared to a rate of 10% in monolingual English-speaking homes (Steinberg, Blinde, & Chan, 1984).

There has been a corresponding rise in the number of language minority workers. A dramatic increase in the number of Hispanic workers alone occurred during the 1980s. In 1980, 6.1 million persons of Hispanic origin participated in the civilian labor force. There were 9.3 million in 1989, and, by the year 2000, that number is expected to increase to 14.3 million (U.S. Bureau of the Census, 1991, Table 632). Refugees from Southeast Asia, Africa, islands in the Caribbean, and Eastern Europe also contribute substantially to the influx of new Americans. By the year 2000, the largest share of the population and workforce increase since World War I will be immigrants (Johnston and Packer, 1987), many of whom will be unable to realize their maximum potential as workers because of limited English-speaking skills and few opportunities for occupational training.

In *Workforce 2000*, Johnston & Packer (1987) did not anticipate recent legislative efforts to curb a wide range of government expenditures, educational programs among them, to effect a speedy recovery from deficit spending; nor did they anticipate strong anti-immigration efforts or curtailment of affirmative action programs. Nonetheless, they did predict growth in productivity, strong exports, and an expanding world economy; a decrease in manufacturing with an increase in the service industries; an older workforce with a higher proportion being female and disadvantaged; and a mere 1% annual rate of growth for the workforce, the slowest growth since the 1930s. They also predicted that few jobs will be created for those who cannot read, solve mathematics problems, follow directions, or function as team members. The available jobs, including those in the service industry, will demand higher levels of skills.

Such requirements could mean fewer opportunities for success for immigrants in the future unless adequate means are found to serve their educational and social needs while taking advantage of their strengths: Although many recent arrivals may need special training and assistance, many have excellent educational backgrounds, experience in other types of work and educational settings, and a willingness and eagerness to work and to be productive. Further, all possess the knowledge of another language.

Since the immigrant and refugee population presents diverse educational needs, it is important for a range of vocational education programming to be considered for that population and for English language instruction to be integrated effectively with it. Effective integration of this population into vocational programming involves collaboration between vocational and language teachers in *educational approach, curriculum,* and *teaching activities*. It also requires the support of administrators who not only provide the time and financial resources for teachers to meet and collaborate, but also establish an environment that welcomes and takes advantage of cultural and linguistic diversity.

Educational Approach

In the fields of both vocational and second language education, major trends reflect a common educational theme: the integration of learning experiences for students across the disciplines. This section describes some of those trends. Because this paper discusses vocational education for language minority learners in adult education programs as well as for students in secondary and post-secondary education, the terms "student" and "learner" will be used interchangeably, as will "instructor" and "teacher."

Vocational and technical education programs in many secondary schools are being integrated with academics (Grubb, 1991; Kolde, 1991; Rosenstock, 1991) in an effort to promote higher-order thinking skills such as evaluation, synthesis, and analysis in traditionally hands-on environments (Bloom & Krathwohl, 1977; Miller, 1990), and to create authentic problem-solving experiences in more academic settings (Cognition and Technology Group at Vanderbilt, 1990; Johnson, Foster, & Satchwell, 1989; Newmann, 1991; Resnick, 1987). When complex thinking skills are incorporated into learning activities, the linguistic structures in which more abstract concepts are expressed require more complex linguistic knowledge as well (O'Malley & Chamot, 1993), thus holding promise for language development to take place in settings other than language classrooms.

Similarly, in second language education, content-based English as a second language (ESL) (Brinton, Snow, & Wesche, 1989; Crandall, 1995; Crandall & Tucker, 1990; Hudson, 1991; van Naerssen & Brennan, 1995) and English for specific purposes (ESP) (Hutchinson & Waters, 1980; Jones, 1991; Swales, 1985, 1990) are responses to the need for second language learners to simultaneously be learners of academic content in specific domains. In content-based instruction, the focus is not on learning the language, but on using it as a medium to learn something else (e.g., a subject such as social studies, science, or math). ESP language training focuses on the design and delivery of courses for 1) academic students in specific graduate and undergraduate disciplines, and 2) learners working or preparing to work in business, industry, government, or other places of employment. Vocational English as a second language (VESL) can be considered a kind of English for specific purposes, or content-based language approach. VESL is taught by a trained ESL instructor and focuses on the specific language demands of students' vocational areas such as cosmetology, automotive repair, and food services (Center for Applied Linguistics, 1983; Friedenberg, 1995).

Other trends in education point to many possibilities for effective collaboration between vocational and ESL specialists. Certain current practices in second language teaching address the needs of less academically inclined students in vocational education, as well as the needs of those with limited English proficiency. The "acquisition-rich" environment (Ellis, 1990, p. 172) is one in which there is comprehensible input and learners' "affective filters" (Krashen, 1981, p. 170) are low. In other words, learning occurs in classrooms where concrete experience, comprehensible written and spoken language, and positive affect

abound. Many vocational classrooms can be identified in this way, the instructors having adjusted their programs to students with special vocational needs of various kinds.

Finally, communicative language teaching practices (Faltis, 1993; Murphy, 1991; Savignon, 1972; Tarvin & Al-Arishi, 1991), including cooperative learning (McGroarty, 1989), commonly promoted in second language education and supported by language acquisition research (Lightbown & Spada, 1990; Long and Porter, 1985), suggest that a good deal of two-way classroom talk can and should occur. This kind of talk includes modification to input (Krashen & Terrell, 1983; Long & Sato, 1983). This means that in teacher–student and in student–student interaction, input is adjusted to the students' current level of language proficiency, and modifications are made during conversations as indicated by information received from checks for comprehension and clarification.

There exist strong arguments in the field of education in general that support interactive practices of various kinds (Goodlad, 1984; Stellar, 1988). Newmann's notion of "authentic student achievement" (1991, p. 459) involves close interaction between teachers and students as does "assisted performance" (Tharp & Gallimore, 1991, p. 20), in which teachers assist learners to grow beyond their current levels of knowledge (Moll, 1990; Tharp and Gallimore, 1988, 1991). Not only is conversation integral to the language learning process, it is now acknowledged as essential to the construction of knowledge in general. Limited English proficient students should be led toward participating in as much instructional conversation of an extended nature as possible (Goldenberg, 1991; Tharp & Gallimore, 1991). This practice is supported by current trends in both vocational and ESL instruction (Goldenberg, 1991; Patthey-Chavez, Clare, & Gallimore, 1995; Tharp & Gallimore, 1991; Tharp & Yamauchi, 1994) and is a major theme of this paper.

Thus, vocational classroom environments are potentially excellent for language learning. The hands-on component, characterized by work in pairs or small groups, highlights authentic learning through the use of a variety of tools, materials, and equipment in the production of concrete products and services. Often, learners are highly motivated and involved. In their manipulation of tools and equipment, they talk with one another and with their teachers about the work at hand, discussing and reviewing processes and procedures as a normal part of the vocational activity. All these factors contribute to rich language learning potential as well as to high motivation. Yet the existence of such environments does not automatically ensure that limited English proficient learners will succeed in them, either from the standpoint of concept and skill acquisition or from that of English language development.

Although opportunities to talk can and should be incorporated into the behavioral objectives of vocational education, teachers generally control the talk in their classrooms and thus do not always take advantage of the many opportunities to interact with students and to elicit what their students know. This holds true for both vocational and ESL teachers, since many still adhere to the "recitation script" described by Tharp and Gallimore (1991, p. 1) as the most prevalent means of teaching in the United States today. In a National Center for Research in Vocational Education (NCRVE) study (Platt, Shrawder, Ujhelyi, & Wannawati), vocational and ESL teachers alike were observed

eliciting brief, predictable responses, rather than engaging learners in authentic conversations about vocational topics. In many classrooms, listening is praised while talking is discouraged. Student-initiated questions and student-to-student interaction are still rare, and many teachers lack the skills to implement effective activities that take advantage of students' inclination to talk, to relate to one another socially, and to discover things for themselves. In addition, teachers may not provide enough opportunities for limited English proficient students to practice specific components of their new language: comprehension, pronunciation, spelling, and sentence construction with vocational terminology; specific syntactic constructions such as complex noun phrases and passive statements; and manipulation of temporal or causative elements in descriptions of processes and procedures. These components will be discussed at greater length in the section on content-based language activities.

The Vocational ESL Curriculum

Vocational classroom activities take place within the larger framework of a curriculum, which in turn rests upon certain assumptions about the nature of learning. The central component of vocational education is the application of theoretical knowledge to real-life, occupation-related problems. The philosophical antecedent for this learning-by-doing approach is found in Dewey (1933). More recently, such educators as Resnick (1987) have called for schools to emulate real-life activity settings to enhance student learning. While students with limited ability to speak English have been excluded from vocational education because of concerns about safety and quality control, the reality of falling enrollments in many vocational programs has forced these programs to become more inclusive (Friedenberg, 1987). However, for the student with limited English-speaking ability, curricula must be specially adapted to make vocational content comprehensible and achievement demonstrable. The problem facing those implementing a vocational program for limited English proficient students is that the ESL teacher assigned to teach VESL may know nothing about the vocational or technical area, and the vocational teacher may know little about working with limited English proficient students. Nonetheless, effective, substantive collaboration between the vocational and ESL teachers may address and even circumvent some of these issues, resulting in interesting and challenging learning of both language and concepts by the students.

Types of Language Curricula

One of the concerns in designing VESL curricula is to decide which of the different types of curricula in second and foreign language teaching to use as referents. These curricula, as well as the various teaching approaches, range across the philosophical spectrum and can be divided roughly into two types: *product* and *process* curricula (Breen, 1987).

The grammar-based syllabus is an example of a *product* curriculum. In this type of curriculum, second language instruction is organized around an ordered set of grammatical structures that are presented in conjunction with vocabulary words about a certain topic such as daily routines, transportation, or shopping. Such instruction is mostly focused on sentence-level phenomena and is based on the belief that mastery of vocabulary and grammar is equivalent to learning the language. This curriculum is still the most common in language teaching, and many ESL teachers are grounded in this approach (Breen, 1987; Krahnke, 1987). Such teachers tend to stress pronunciation, vocabulary, and structure—not the elusive larger units of spoken language.

Another product curriculum type, the functional syllabus, also focuses on sentence-level phenomena. The functional syllabus has as its organizing principle a set of linguistic functions such as thanking, promising, and ordering. These functions become the focus of concern in the language classroom rather than the structure or vocabulary. The belief is that students have learned the language when they can perform the same functions as native speakers.

It is important, however, that students be able to perform language functions beyond the normal conversational gambits (e.g., greeting, refusing, agreeing) that typify many published vocational materials (see, for example, Texas Education Agency, 1985). Participants in vocational

programs or in occupational settings need to demonstrate competence in the language functions of the job itself as well as in interactions with other employees. Certain linguistic functions typically performed both in vocational classrooms and occupational settings include identifying, asking and answering questions, following and giving instructions, describing, explaining, and troubleshooting. The ESL materials by Newman, Grognet, and Crandall (1994) emphasize a range of functions and specify particular settings in which these functions might occur. The teacher-training materials by Friedenberg & Bradley (1988) and Friedenberg, Kulick, Gordon, & Dillman (1988) demonstrate both a focus on the sentence–level and on functional approaches to VESL.

More recent *process* curricula foster learners' ability to communicate in the language and to participate in the several discourses in which speakers of the language engage. These curricula may be organized around task, theme, situation, or subject-matter content and are claimed to foster language acquisition by providing more interaction than other types of curricula (Long & Crooks, 1992; Nunan, 1991). While some adherents to content-based ESL eschew the explicit teaching of grammatical structures, preferring a whole language approach (Goodman, 1986; Rigg, 1991), research in the field has generally supported the incorporation of some form-focused instruction in rich communicative contexts (Lightbown & Spada, 1990; Long & Porter, 1985).

Elements of Vocational Curricula

The elements of a generic vocational curriculum include the experiential and theoretical aspects of conceptual, procedural, and manual knowledge as applied in a specific vocational area. Because it is adjunct to the regular vocational curriculum, the VESL curriculum is based on the content of the vocational curriculum. When adapting such curricula for limited English proficient students, the language and metacognitive aspects of the particular vocational curriculum must be highlighted and addressed. While in some cases materials might be rewritten at a more comprehensible level (Friedenberg et al., 1988), there are many ways that authentic materials can be approached by adjusting the tasks (Hutchinson & Waters, 1980). Examples of areas to notice in materials, in vocational teaching approaches, and in classroom interaction patterns include the following:

vocational concepts and the technical, subtechnical, and colloquial names associated with them (e.g., technical: series circuit, cripple stud, polyurethane; subtechnical: locate, filter, prepare, increase, signal; colloquial: the whole nine yards, that sucker, whachacallit, come up with the answer);

grammatical structures used to express the vocational concepts, both in informal class discussion and in texts, manuals, or other printed materials (e.g., passive sentence constructions, complex noun phrases, elliptical constructions, temporal and causal clause connections);

communicative functions and skills that are performed in all aspects of the classroom and occupational settings (e.g., giving and receiving directions; asking and answering questions; describing objects and materials; explaining processes, procedures, or functions);

various ways of obtaining information in the vocational environment (e.g., reading and interpreting thermometers, gauges, recipes, computer displays and print-outs, tables, graphs, charts, or regulations; participating in instructional and informal conversations with teachers, peers, or paraprofessionals; experimenting and practicing with equipment such as the typewriter, lathe, electric mixer, curling iron, or oscilloscope);

patterns of interaction in the classroom, including ways in which teachers and paraprofessionals interact with learners formally and informally and ways in which learners interact with one another (e.g., teacher-fronted activities, pairings, group work);

study skills and learning strategies needed to master and retain information in the vocational area (e.g., personal glossaries, flashcards, recorded lectures and demonstrations used for review, skills tests, troubleshooting own performance, peer tutoring, use of own home language); and

higher order thinking skills (e.g., comparison and contrast, analysis, evaluation, synthesis).

Needs Analysis and Placement

Developing a curriculum to support limited English proficient students in vocational programs begins with a needs analysis (Brown, 1995). That analysis includes collecting information about participating students (current levels of English, prerequisite knowledge and skills, career goals), about the vocational area (skills and knowledge needed for entering the work force, licensing procedures, current need for workers in a specific locality), and about the course material itself (proper sequencing of concepts and skills, and availability and adequacy of teaching resources, including those needed to address students' special needs).

The placement of a student of limited English proficiency into a vocational program necessitates making an appropriate match between the student's profile and that of the program. For example, given ESL support, a person with very limited English-speaking skills but a good educational background in math might be expected to do well in an electronics program. Another student with good speaking ability but limited literacy and numeracy skills would need to improve these skills before entering electronics. Although limited English proficient students by law cannot be excluded from programs because of a lack of knowledge of English (Platt, Douglas, Friedenberg, Kelly, & Kulick, 1993), it might be better to counsel them to master specific language, literacy, and numeracy skills prior to enrolling in a program where minimal resources are available to them and where they are thus not likely to succeed.

Implications for Implementation

Three educational trends, identified in the Educational Approach section, can contribute to successful collaboration between vocational and language teachers:

1. integration of academic and vocational content;
2. emphasis on basic skills; and
3. recognition of the importance of talking, both in promoting effective communication among class participants and in aiding the construction of knowledge.

For each of the parties involved—vocational teachers, language teachers, and administrators—the following are possible implications of these trends in planning and offering instruction to limited English proficient students:

Vocational teachers

Their greater role in the school becomes more apparent as they can work across the curriculum with others in the integration of minds-on/hands-on knowledge and skills. Because they are the main source of knowledge for VESL teachers with respect to the vocational content and procedures, vocational teachers need to assist the VESL teachers to understand the basics of the vocational area and how the students construct knowledge in that setting. They should meet with VESL instructors during a pre-course workshop to study ways to adapt existing curricula to the special needs of limited English proficient students at various levels of language and literacy skills. They should then identify materials used in their programs and discuss ways they have been successful in adapting the materials for special needs learners in the past.

From their colleagues in ESL, vocational teachers can learn to more effectively integrate language and literacy skills into the existing vocational program. They can begin to highlight communicative activities such as role plays, oral presentations and reports, and cooperative groups. They can approach textual material in more effective ways. For example, they can target skills such as reading manuals (e.g, plumbing and pipefitting specifications, computer software installation, or care and use of a Hobart mixer). Other suggestions appear in the following section on content-based teaching activities.

VESL teachers

While they may see themselves as specialists working with a specific population of students, ESL teachers are often viewed by vocational faculty as members of the academic side of the school (Platt et al., 1992). VESL teachers can play a bridging role between the two communities in the school by pursuing language teaching goals in real-life settings and emphasizing the speaking and listening skills required for students to participate fully in the program. During the pre-course workshops, they can show their vocational colleagues how to break down complex language behavior into manageable instructional episodes. VESL teachers can also work with students in an ESL setting to develop their language skills through use of vocational content, or they can work directly in the vocational shops as part of the instructional staff, encouraging and participating in instructional conversations among students.

From their vocational colleagues, VESL teachers will learn what printed vocational materials are used most frequently and thus will be able to anticipate difficulties students are likely to experience. VESL teachers might be able to suggest some study skills and learning strategies that both they and the vocational teacher can agree to emphasize. For example, the vocational teacher might assign students to make flashcards of main technical terms. The VESL teacher could then help students make flashcards of subtechnical vocabulary and colloquial expressions. Other suggestions appear in the following section on content-based language activities.

Administrators

Bridge building between vocational and language specialists can begin in school-level staff development, in cross-departmental classroom observations, and in curriculum-planning sessions. If these collaborative activities are to succeed, time and appropriate resources must be allotted to them. Further support is required at the level of each pair of collaborating teachers, including making sure that the VESL teacher is scheduled to work with a reasonable number of vocational teachers and students, providing space for instruction and materials to supplement those used in the vocational program, and allowing time for periodic planning with vocational teachers. Finally, the vocational teacher needs to be given administrative assurances that appropriate steps will be taken prior to the class to ensure the safety and minimize the risk and liability of limited English proficient students working with expensive and occasionally dangerous equipment.

In addition, at both institutional and district levels, administrators can support curriculum planning by providing outside expertise such as vocational curriculum consultants and instructional design specialists. Administrators should provide material, time, and financial resources for needs analyses and curriculum projects. They should also establish timelines for various curricular projects to be completed. Finally, they need to direct school counselors to use the results of student and program assessment to assist in recruitment and placement of students in vocational programs; limited English proficient students should not be counseled or placed into programs when the difference between their current level of language and conceptual knowledge and that of the program is too great for them to succeed with a reasonable amount of VESL and/or paraprofessional support.

Content-Based Language Teaching Activities

Although adaptation of course curricula is one concern in planning for the participation of limited English proficient students in vocational programs, of equal importance are methods, techniques, and activities that both vocational and VESL teachers can use in instruction. Since ESL teachers are often unfamiliar with the vocational curriculum, concepts, and purposes, they may not know about the various activities in which the students participate. Given this situation, many teachers tend to stress vocabulary practice and grammatical forms rather than attempting to understand and reproduce the various ways in which students learn in their classroom. As ESL teachers face the challenge of implementing a VESL curriculum around particular vocational areas, they require some basic grounding in those areas (see, for example, Friedenberg et al., 1988), ideas for teaching strategies to aid student learning, and suggestions for activities that maximize oral and written language development. Similarly, vocational teachers may need to learn ways to engage in instructional conversations with learners of very low oral proficiency in English. To do this, the vocational teachers need a basic understanding of the language development process; the level in the process each particular student has currently reached; and the kinds of talk to engage in at each level to enable the student to comprehend, interact, and progress. The rich context of the vocational classroom facilitates the latter considerably, and extensive collaboration with VESL colleagues can result in eventual mastery of this knowledge and skill.

Two practices that both vocational and VESL teachers should use with limited English proficient students include scaffolding of instruction and fostering independent learning. These practices are described below:

Scaffolding Vocational Instruction

Teachers working with limited English proficient students in mainstream vocational programs require techniques that are best implemented by *scaffolding* the instruction of individuals or small groups of students through various tasks. Scaffolding, a kind of assisted performance, is described extensively in educational literature. Tharp and Gallimore's (1988, 1991) formulation of scaffolded performance rests on a Vygotskian philosophy of development that is sociocultural in origin (Donato, 1994; Vygotsky, 1986; Wertsch, 1979). Specifically, the development of higher mental processes is mediated through the assistance of more knowledgeable others in the *zone of proximal development*. The zone of proximal development is an abstract concept that refers to what a learner can accomplish with assistance (as differentiated from what the learner can do unassisted) (Tharp & Gallimore, 1991). In other words, after having determined the starting point for learners, the teacher or a knowledgeable peer assists them step-by-step through an activity at the next higher level so that they will be able to perform the task independently the next time.

The following is an example of assisted performance for a welding student who has very limited ability in speaking English. The student is learning the names and uses of the safety equipment. Either the vocational or the VESL teacher might assist the student by following the steps listed below:

1. Name several pieces of safety equipment and demonstrate what can happen when the equipment is not used properly. Mime how the equipment works, gesture how to use it correctly and incorrectly, and use appropriate facial expressions to signal that something has gone wrong.

2. Ask the student, at reasonable intervals, to repeat what has been said and to mime the consequences of correct and incorrect use of equipment.

3. Put words to the actions: "helmet—to protect eyes and hair from sparks."

4. Ask the student to describe the uses of the equipment. Occasionally intervene to correct pronunciation, reiterate correct models of word order or morphology (e.g., plural or tense endings), and encourage the student.

5. Have the student write this information in a glossary, on flashcards, or in a list of safety procedures.

6. Test the student on the information the following day, verbally or in writing.

The VESL teacher might first demonstrate the above technique for the vocational teacher who could then teach it to a paraprofessional or a peer who could guide the limited English proficient student through a similar activity on another occasion. Such a system encourages targeted peer assistance and frees the teacher to work with others. The teacher might also seek the assistance of a peer who speaks the student's language. However, using that peer to translate should not be the only means by which assistance is provided. Such assistance may provide comprehensible input, but it does not ensure language development in English.

Fostering Independent Learning

In addition to implementing scaffolded performance of tasks, teachers' responsibilities to limited English proficient students involve selecting objectives that help them function as independent, responsible learners. The following is an example of how a VESL teacher might help a small group of students come to understand a machining class lecture and discussion through a step-by-step process:

1. Teach students how to videotape their vocational teacher giving a lecture or leading a discussion.

2. View the video and select portions to work on in the VESL class.

3. In the VESL class, have the students first talk about the main ideas of the lecture or discussion and then relate these ideas to what they have been learning in the vocational class.

4. Play back the selected segments and ask students to explain what the teacher was doing or saying (e.g., showing a particularly large tool used in a nearby factory, drawing the way one tool meets the surface of another, explaining how the lathe turns around different axes, or using expressions such as "the whole schmeer").

5. Ask students to list things they understood the second time that they had not understood the first and suggest they play back other segments.

6. Have them make notes of what they learned or write down questions to ask the vocational teacher in the next class.

7. Note points in the lecture where students' understanding was limited and ask the vocational instructor to re-explain the material or to assign an explanatory reading or rereading of the class text.

8. During the next VESL class, have the students select video segments to work with on their own and ask them to make notes and write questions to pursue later.

The following section includes a number of specific activities to assist instructors in helping learners to improve both their English and their grasp of specific vocational content. This difference in emphasis on discourse and learning strategies does not preclude form-focused or functional language instruction, but simply places it in a larger context. Moreover, when teaching is aimed at helping students build skills to participate in this wider vocational discourse, it is also possible to incorporate higher-order thinking skills as described in O'Malley & Chamot (1993) that contribute to cognitive academic language proficiency, the proficiency that enables students to master a range of academic language functions (Cummins, 1980).

Actual examples from vocational classes are described below. In all cases, these activities were observed in specific vocational classrooms and could be implemented in a variety of other classrooms, as well as in occupational settings where classes are held. The effectiveness of these activities in other settings depends on assigning each aspect of the task in a way that maximizes teachers' expertise and makes effective use of peer and technological support. In keeping with the fact that language objectives should be organized in a logical manner, the activities are sequenced according to the stages of second language proficiency, from pre-speaking to low-advanced speaking level. What is recommended in the case of each example are adaptations of two types:

1. alternative ways to teach the vocational lessons, and

2. extensions of the activities into a VESL setting.

The activities take into account the authentic occupational language needs of both limited English proficient and non-limited English proficient students, have potential for the expansion of oral and written language skills, and promote higher-order thinking and learning strategies. Finally, with each activity, there are suggestions for technological means to support and extend the vocational and VESL instruction.

Pre-Speaking Level: Comprehension and Response

Language Level

Students who are just beginning to learn a new language may experience a pre-speaking period in which they are trying to process their new language aurally. Although they may be unable or reluctant to speak, they may be placed in situations in which they can demonstrate that they are learning new concepts and skills.

Authentic Vocational Needs

In virtually all vocational settings, learners must master the names of tools, materials, and equipment. Further, they must identify their uses, and in the case of materials, their properties. Even at this language level, students can begin mastering these terms by pointing to them or by matching pictures with printed words. Further, while they may be unable to explain the important safety procedures to be followed in most vocational classrooms, they can demonstrate comprehension and adherence to the procedures in various ways, including acting out unsafe practices and the adverse consequences of incorrect use and demonstrating how to use equipment correctly.

Authentic Example 1

Machine technology and auto body instructors observed in Texas and Minnesota required students to work periodically in the tool room, where they supplied tools their classmates requested. Students were not allowed to simply point or give vague descriptions when requesting tools, but rather had to use the correct terms or describe the function of the tools.

Possibilities for VESL expansion

In VESL, students might use their vocabulary lists of object names (nouns) to begin generating a new list of uses for these objects (thus requiring a list of verbs). This can lead to the creation of sentences with useful patterns such as the following: "I *can* cut sheetrock *with* a knife," "The screwdriver *is used to* tighten screws," "We *use* Pam so food does not stick to the pan," or "A lathe is *for* mak*ing* tools."

Technology

To recontextualize the tool-naming activity, students might tape record a message for a workcrew explaining what job needs to be done and where, and what tools or equipment are needed for each aspect of the assigned task. A tape of this kind might be used by the VESL teacher to document stages of language development or by the vocational teacher to determine students' understanding of tools, equipment, materials, ingredients, and their uses.

Thinking skills

Although tool room duty does not demand great conceptual skills, the task necessitates the learning of precise terms, which lays the foundation for future comparison and contrast activities.

Authentic Example 2

An excellent example of how to challenge the beginning learner was offered by a marketing teacher in Massachusetts who put a new Cambodian student in candy sales in the busy school store so as to "bombard him with English." The student was required to respond automatically and quickly to customers' requests and to charge them correctly.

Possibilities for VESL expansion

The VESL teacher, aide, or peer volunteer might capitalize on the student's interest in learning candy and money terms by using these terms in pronunciation, Roman script handwriting, or spelling practice. The teacher could expand on the store schema and build a dialogue for the students to practice and then engage them in a role play that could occur at the school store, releasing control and encouraging students to use their own words.

Technology

Independent practice would be possible with a language master or with double-track cassette recording equipment. For early stage learners, teacher-made dialogues could be recorded for practice. Later, the students' own dialogues could be recorded as a way to document the language learning process. Dialogues and role plays could also be audio- or video-recorded as a way to begin documenting the language learning process.

Thinking skills

While this task is at a lower level in the hierarchy of skills, it is challenging for learners at this level because they are faced with the daunting task of learning hundreds of English words as quickly as possible. As a listening discrimination task that must be performed quickly, the task requires rapid processing, thus precluding translation from the first language.

Early Speaking Level: Rudimentary Conversation

Language Level

At a higher level of language development, learners can comprehend more of what they hear in normal classroom situations and are able to engage in routine conversations with classmates, to request objects or assistance, or to talk about themselves and ask about others.

They have mastered more terms for concrete objects and are ready to expand upon their increasing knowledge of concrete vocabulary for a wide range of descriptive functions.

Authentic Vocational Needs

Learners at this stage need to discuss their projects with others. Since many of the products of vocational programming are their own creations, they need to be able to share their visions of what their creations will be like before they begin.

Authentic Example 3

A welding instructor in Minnesota reported that his students had to name and describe the different kinds of metal alloys in terms of color, density, malleability, conductivity, and other defining characteristics of the metals. Later in the course, as more examples were introduced, he asked students to synthesize their knowledge and apply it to their projects.

Possibilities for VESL expansion

The VESL teacher could help contextualize this activity from the beginning, requesting from the instructor a list of possible welding projects sequenced in the order that new materials and techniques will be introduced in the vocational classroom. In the VESL class, students could then identify which metals they would use for the various welds and why.

Technology

Students could cross-index the metals in terms of their characteristics, creating a matrix with spreadsheet software or a hypercard program.

Thinking skills

Such an activity would involve analysis and evaluation. It would also introduce students to the use of persuasion as a rhetorical tool.

Authentic Example 4

In a fashion design class at a technical college in Los Angeles, the teacher described, illustrated, and showed examples of different kinds of skirt pleats. After each description and example, she asked students to describe the pleats in their own words, using a question-and-answer format in a kind of chain drill. However, the activity lacked authenticity, not in the selection of the terms themselves, but in the way in which they were taught.

A more meaningful alternative might be a teacher creating a jigsaw or role-play task in which students would work with the actual garments and practice the terms and their descriptions, yet participate in open-ended, decision-based discussion. To do this, the fashion design or sewing teacher could distribute several pairs of cards. One card in the pair would have the name and a description or illustration of a pleat, the other only its function. One student in the pair would be a sewing consultant and the other a novice seamstress who wants to know what pleats to use in making bridesmaids' dresses, for example.

Possibilities for VESL expansion

Students could make drawings or create actual examples of each of the pleats, write notes about their particular uses, and indicate specific information such as the type of fabric best suited for a given type of pleat. They could summarize their discussions about the garments they were planning, then write letters to their friends or relatives who would help them make the dresses.

Technology

Instead of writing letters, students could compose electronic mail messages about the pleats with one another or with native-English-speaking classmates.

Thinking skills

This type of task involves analysis and evaluation.

Intermediate Speaking Level: Explaining Processes and Procedures

Language Level

At this level, second language learners are able to talk about events using present, past, and future tenses. Because they can talk about situations and objects that are not present, as well as those that are, they are able to participate in discourse involving temporal or causal ordering of events. Their vocabularies have grown to include many more abstract terms and more grammatical categories in English, including pronouns, articles, clause connectors, and prepositions.

Authentic Vocational Needs

Crucial to participation in vocational classrooms is the ability to explain processes and procedures of all kinds. For example, students might be asked to explain the steps in preparing a recipe or repairing an engine, or the safety procedures involved in using equipment safely at a construction site or in an aircraft maintenance and repair shop.

Authentic Example 5

In a cosmetology practicum in an urban high school in Pennsylvania, three students, each having a different native language, were placed in a situation where two of them followed a step-by-step procedure for giving a facial. While one of the students talked about and acted out the diagrams in the text, another student gave a facial to a third student. An aide questioned the participants at each step.

A more effective alternative would have been that, prior to the facial activity, the students could have been assigned a text-based activity in which they would have to create a chart indicating the steps involved in giving a facial and the reasons they are necessary. Later, the activity could have been made into a role play, for example, a cosmetologist giving a facial to a curious customer who was asking what was happening and why.

Possibilities for VESL expansion

In VESL, the students could review the key terms orally, then describe the process highlighting temporal and causal connectors. They could then write an article or advertisement for the school newspaper promoting the facial for enhanced health and attractive appearance.

Technology

PageMaker or other computer software designed for layouts could be used to create an attractive news article.

Thinking skills

This activity would involve both synthesis and evaluation.

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Authentic Example 6

In preparation for the state licensure examination in aircraft maintenance and repair, a Japanese student was asked by his instructor to find the source of a problem in a mock-up of an aircraft combustion heater. The instructor's purpose was to probe his student's knowledge of the inner workings of the heater, using both the actual hardware and the accompanying schematic diagram. Although the student was very limited in his ability to speak English, he could nonetheless satisfactorily respond to some of the questions. However, he missed other important relationships among the parts of the heater. The instructor learned what gaps existed in this student's knowledge and was able to design specific activities to help the student be ready for the exam.

Possibilities for VESL expansion

A VESL teacher hearing the student's performance would have noticed that he also mispronounced the names of the various parts of the heater and their functions and that he tended to use causal connectors instead of temporal ones. This made it difficult to know if he understood the sequential nature of the task he was expected to perform for state examiners who were not likely to let his language difficulties pass, particularly if he would be working in the United States. To address these problems, the VESL teacher could first target pronunciation and temporal connector problems and the structures associated with them. Next, the teacher might situate practice by asking the student to explain the various parts of the schematic shown in his text or class worksheets and to repeat the procedures to be followed in tracing the source of a problem in an engine.

Technology

A videotape of the student's performance that could be viewed by both teachers would assist them in designing remedies for either conceptual or linguistic difficulties. When viewed with the student, the tape could be used by the VESL teacher to point out problems with comprehensibility.

Thinking skills

Solving this problem adequately requires not only knowledge of the design of the heater but also of the steps required in tracing the problem to its source. The solution entails analysis, evaluation, and decision making.

Authentic Example 7

Japanese students in an aircraft maintenance technology program in California toured their shop with an instructor for the purpose of telling their visitors (the researchers) the safety features of each machine, the safety procedures required when using them, and the consequences of failing to observe the proper procedures. However, the activity was not successful in getting the students to explain anything, and the teacher ended up answering all of the questions himself. After the teacher had reviewed different safety aspects of the equipment and machines with the students, the researchers asked the students to make the tour again. This time the students were able to perform the oral tasks required.

Possibilities for VESL expansion

This case suggests potential for substantive collaboration with the VESL teacher on the issue of sharing effective techniques to use with limited English proficient students. Given a videotape of the activity, or an actual observation, the VESL teacher would spot the vocational instructor's problems and suggest alternative ways of teaching the limited English proficient students. For example, this instructor did not call on specific students and did not get volunteers when he addressed questions to the whole group. Further, when he asked questions, he did not give students adequate time to compose their answers. And his repeated rephrasing of the same questions were problematic for some of the students, who thought he was asking several different questions. If counseled to call on specific students and to give more wait time after asking questions, the vocational teacher could get more participation from students and more knowledge of their level of competency with the class content. After assessing that the students had at least understood the basic safety rules, the VESL teacher could use the oral causal reasoning task described above as a starting point for having students write the safety rules in simple English or in other languages for a new limited English proficient student.

Technology

Rules could be typed and formatted in a computer word-processing and graphics program.

Thinking skills

This becomes an evaluative activity when the rewritten rules are checked against those of the aircraft instructor or the equipment manufacturer.

High-Intermediate or Low-Advanced Speaking Level: Troubleshooting

Language Level

At this level, second language learners have achieved mastery of many of the grammatical structures of English and can understand much of what they hear in familiar domains. They can talk about hypothetical situations and objects as well as those existing in real time, and they have the linguistic means to engage in speculation. Their vocabularies are quite extensive, although they are still learning many alternative ways of expressing the same thing, and they may not yet have learned many colloquialisms.

Authentic Vocational Needs

Troubleshooting is a necessary aspect of participation in every vocational area, and success requires specific kinds of procedural knowledge (e.g., where to start looking for the source of a problem) and critical thinking skills (e.g., if the light went off when I turned the dial to the right, then what would happen if I turned it to the left?). Troubleshooting is also a good metacognitive skill: In talking out loud about procedures, the learner engages in private speech, a practice often overlooked as an important source of learning. Examples of troubleshooting across the vocational curriculum include trying to find out why a loaf of bread does not rise, why a display does not stabilize on an oscilloscope, whether a letter typed on a word processor contains errors, or why a three year old in a child care program continually cries during nap time.

Authentic Example 8

In another California college, an electronics instructor presented several terms pertaining to the parts of the oscilloscope, the phenomena displayed on the screen, and a formula for measuring frequency. He then divided his students into groups of three to role play the scenario of a job-seeking technician being assessed by a supervisor and an observer. The technician had to demonstrate the ability to manipulate the controls on the oscilloscope, use the terminology accurately, and follow the instructor's directions to compute the formula. This task involved lively discussion among the participants, each having an opportunity to play all three roles. In one group, two of the students were helping a groupmate with less proficiency talk throughout the procedures. In another, a student was talking himself through the procedures, barely heeding the others. In a third situation, the group members found that their instruments were not working, so they departed from the role play to solve the problems. In a fourth, the students were actually following the suggested conversation for the participants in the prescribed scenario. The supervisor and observer asked the technician to solve the problem. He did so, answering all of their questions by explaining throughout the procedure what he was doing at the moment. In all the groups, a considerable amount of authentic and extended work-related conversation was produced.

Possibilities for VESL expansion

Careful study of a videotape of this activity revealed that the Vietnamese student who gradually emerged as the most expert in his group was at first ignored by his more English-proficient classmates. Viewing the video together, the VESL teacher and student could determine what intervention (such as exercises to improve his pronunciation) was needed so that this student's expertise could be recognized.

(continued)

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Probably the most important aspect of the vocational experience for the limited English proficient student is being initiated into the social structure of the occupation through participating in informal groups with ever-changing membership. Students just talk, whether over a counter top in a kitchen or in front of a computer screen in a graphics class. Their conversations occur in the dialects or languages of the local teenagers or young adults in the community. Both vocational and VESL teachers should encourage such activities to learn what takes place in these groups, for that is where students recapitulate in their own ways what they have learned and form bonds with others having similar interests. In short, extended discourse assists in building both conceptual and social structures.

Technology

To help students who often remain on the fringes of such groups, the vocational teacher might reassign peer groupings, while the VESL teacher could have students view video playbacks and troubleshoot their own difficulties in participation, such as not knowing the idioms and slang or, as in the case above, the difficulties in making themselves understood due to pronunciation problems.

Thinking skills

This activity involves the analytic skills needed to troubleshoot problems that arise when working with sophisticated equipment and displays.

Conclusion

To summarize, there are several ways vocational and VESL teachers can facilitate the learning of English as a second language. First, whether language instruction occurs in the vocational or the VESL classroom, the practice of pronunciation, vocabulary, and structure ought to emerge from the normal vocational classroom discourse or from the actual occupational settings in which the students expect to be employed. Second, the ways of knowing in vocational classrooms include not only texts, but lectures, classroom discussions, assignment sheets, graphs, recipes, schematics, computer displays, and the like. Both vocational and VESL instructors need to help limited English proficient students take full advantage of all of these ways of knowing. Third, students should be assisted to identify their own specific needs and questions and to learn their own most effective ways to master the vocational objectives. Fourth, teachers should take advantage of peer assistance, outside assignments, and technology to extend their instructional capabilities by (a) teaching specific techniques to peer tutors or paraprofessionals, (b) assigning students to work in computer-assisted instructional facilities or language laboratories for individualized practice, (c) selecting or adapting suitable vocational materials in collaboration with vocational teachers, or (d) designing projects the students can do individually or in small groups. Fifth, VESL activities can easily be created, not only to simulate what happens in the occupational setting, but also to challenge and develop students' higher-order thinking skills and to reduce the boredom of practicing structures, vocabulary, and pronunciation in isolation from that setting. Above all, these activities should emphasize active participation and the assumption of responsibility by the students themselves.

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